

## CLAIMS

1. An apparatus for measuring an elongated object comprising:

a constant voltage source;

5 a first reference member for positioning one end of an elongated object;

a second reference member for positioning the other end of said elongated object;

10 a resistance circuit comprising a plurality of resistors connected in series, in which the resistor at one end is connected to said constant voltage source and the resistor at the other end is connected to the ground;

15 a detection circuit comprising a plurality of switches that are disposed with uniform spacing along said elongated body and have one end thereof connected between the adjacent resistors and the other end thereof connected to a detection terminal;

switch drive means provided at said second reference member and serving to turn said switch on;

20 measurement means for measuring a voltage in the detection terminal of said detection circuit; and

computation means for computing the length or quantity of elongated materials based on the voltage measured by said measurement means.

25 2. The apparatus for measuring an elongated object according to

claim 1, wherein

said detection circuit comprises three parallel circuits connected alternately to said switches.

5        3. The apparatus for measuring an elongated object according to claim 2, wherein every other switch is removed.

10        4. The apparatus for measuring an elongated object according to any one of claims 1 to 3, wherein said switches are disposed equidistantly in the circumferential direction and the measurement of an elongated object in the form of a circular arc is made possible.

5. The apparatus for measuring an elongated object according to any one of claims 1 to 4, wherein

15        said computation means

computes the difference between a first measurement value obtained by said measurement means when an elongated material of a first reference length is disposed and a second measurement value obtained by said measurement means when an elongated material of a second reference length is disposed;

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computes the ratio of the difference between said first measurement value and second measurement value to the difference between said first reference length and second reference length; and

25        computes the length or quantity of an elongated object to be measured, from the measurement value obtained by said measurement

means when the elongated object is disposed and from said ratio.

6. An apparatus for measuring an elongated object comprising:

a constant voltage source;

5 a first reference member for positioning one end of an elongated object;

a second reference member for positioning the other end of said elongated object;

10 a resistance circuit comprising a linear resistor disposed along said elongated object and having one end thereof connected to said constant voltage source and the other end thereof connected to the ground;

15 a detection circuit comprising an electrically conductive sliding member disposed at said second reference member and having one end thereof in sliding contact with said resistor and the other end thereof connected to a detection terminal;

measurement means for measuring a voltage in the detection terminal of said detection circuit; and

20 computation means for computing the length or quantity of elongated materials based on the voltage measured by said measurement means.

7. The apparatus for measuring an elongated object according to claim 6, wherein

25 said computation means

computes the difference between a first measurement value obtained by said measurement means when an elongated material of a first reference length is disposed and a second measurement value obtained by said measurement means when an elongated material of a second reference length is disposed;

computes the ratio of the difference between said first measurement value and second measurement value to the difference between said first reference length and second reference length; and

computes the length or quantity of an elongated object to be measured, from the measurement value obtained by said measurement means when the elongated object is disposed and from said ratio.